

LAHIVE

&

COCKFIELD

L L P

COUNSELLORS AT LAW

28 STATE STREET

BOSTON, MASSACHUSETTS 02109-1784

TELEPHONE (617) 227-7400

FAX (617) 742-4214

lc@lahcoc.com

JOHN A. LAHIVE, JR. (1928-1997)
 THOMAS V. SMURZYNSKI
 RALPH A. LOREN
 GIULIO A. DeCONTI, JR.
 ANN LAMPORT HAMMITTE
 ELIZABETH A. HANLEY
 AMY BAKER MANDRAGOURAS
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SEAN D. DETWEILER
 ADAM M. GOODMAN
 CYNTHIA L. KANIK, Ph.D.
 MEGAN E. WILLIAMS, Ph.D.
 RICHA NAND

SENIOR COUNSEL
 JAMES E. COCKFIELD

OF COUNSEL
 JEREMIAH LYNCH
 WILLIAM A. SCOFIELD, JR.
 PETER C. LAURO *
 DeANN FORAN SMITH**

PATENT AGENTS
 PETER S. STECHER

TECHNICAL SPECIALISTS
 MARIA LACCOTRIPE ZACHARAKIS, Ph.D. #
 CYNTHIA M. SOROOS
 PETER W. DINI, Ph.D.
 EUIHOON LEE
 LISA M. DIROCCO
 JENNIFER K. ROSENFELD
 JUDITH STONE-HULSLANDER, Ph.D.
 ALLAN TAMESHTIT, Ph.D.
 CATHERINE E. McPHERSON
 ERIC F. WAGNER, Ph.D.
 SHAHID HASAN, Ph.D.
 ASHITA DOSHI, Ph.D.
 JACOB G. WEINTRAUB

* Admitted in NY only
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 *** Passed the Patent Bar Examination

March 9, 2001

Commissioner for Patents
 Washington, D.C. 20231

Re: U.S. Patent Application No.: 09/581,861
*YEAST CELLS EXPRESSING MODIFIED G PROTEINS AND METHODS OF
 USE THEREFOR*
 Inventors: James R. Broach, *et al.*
 Filed: June 19, 2000
 Our Ref. No.: CPI-012C8US

Dear Sir:

I enclose herewith for filing in the above-identified application the following:

1. Information Disclosure Statement (in duplicate);
2. PTO Form 1449;
3. Full copies of references cited in PTO Form 1449 (except reference K1);
4. A copy of the International Search Report;
5. A copy of the International Preliminary Examination Report; and
6. A Return Postcard.

No additional costs are believed to be due in connection with the filing of this Information Disclosure Statement. However, please charge any necessary fees in connection with the enclosed statement to our Deposit Order Account No. 12-0080. For this purpose, a duplicate of this sheet is attached.

I hereby certify that this correspondence is deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on:

March 9, 2001

Date

Peter C. Lauro, Esq., Reg. No. 32,360

Respectfully submitted,
 LAHIVE & COCKFIELD, LLP

Peter C. Lauro, Esq.
 Registration No. 32,360
 Attorney for Applicants



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: James R. Broach, *et al.*

Serial No.: 09/581,861

Filed: June 19, 2000

For: *YEAST CELLS EXPRESSING MODIFIED G
PROTEINS AND METHODS OF USE THEREFOR*

Attorney Docket No.: CPI-012C8US

Group Art Unit: Not Yet Assigned

Examiner: Not Yet Assigned

Commissioner for Patents
Washington, D.C. 20231

Certificate of First Class Mailing (37 CFR §1.8(a))

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March 9, 2001

Date of Signature and of Mail Deposit

By:

Peter C. Lauro, Esq.
Registration No. 32,360
Attorney for Applicants

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Applicants and their attorney are aware of the following publications and information, listed on the attached PTO Form 1449, and in accordance with 37 CFR §1.97 hereby submit these publications for the Examiner's consideration. Applicants invite the Examiner's attention to the fact that references A6, C4-C7 and F1 listed on the attached PTO Form 1449 were cited in the International Search Report issued in corresponding International patent application PCT/US98/21168. In addition, reference K1 listed on the attached PTO Form 1449 was cited in the International Preliminary Examination Report issued in corresponding International patent application PCT/US98/21168.

Copies of the aforementioned International Search Report and the International Preliminary Examination Report are enclosed herewith. Inasmuch as the foregoing publication K1 has previously been transmitted to all the designated Offices, including the U.S. Patent and Trademark Office, a copy of this publication is not enclosed herewith. However, full copies of all the remaining publications listed on the attached Form PTO 1449 are enclosed herewith.

This statement is not to be interpreted as a representation that the cited publications are material, that an exhaustive search has been conducted, or that no other relevant information exists. Nor shall the citation of any publication herein be construed *per se* as a representation that such publication is prior art. Moreover, Applicants understand that the Examiner will make an independent evaluation of the cited publications.

Pursuant to 37 CFR § 1.97(b)(3), no additional costs are believed to be due in connection with the filing of this disclosure. If, however, a first Office Action on the merits issues in this application bearing a mailing date prior to the date of this Information Disclosure Statement, please charge the appropriate fee as required under 37 CFR §1.17(p) to our Deposit Order Account No. 12-0080. A duplicate of this document is enclosed.

Respectfully submitted,

LAHIVE & COCKFIELD, LLP

A handwritten signature in cursive script, appearing to read "Peter C. Lauro", is written over a horizontal line.

Peter C. Lauro, Esq.

Registration No. 32,360

Attorney for Applicants

28 State Street
Boston, MA 02109
(617) 227-7400

Date: March 9, 2001

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APPLICANT FACSIMILE OF FORM PTO-1449

REV 7-80

U.S. DEPARTMENT OF
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ATTY DOCKET NO

SERIAL NO.

CPI-012C8US

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LIST OF PUBLICATIONS CITED BY APPLICANT
(Use several sheets if necessary)

APPLICANT

James R. Broach et al.

FILING DATE

June 19, 2000

GROUP

U.S. PATENT DOCUMENTS

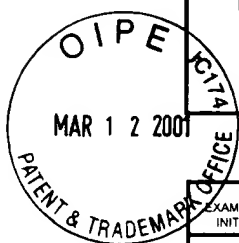
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A1	4,948,874	08/90	Kronvall et al.	350	350	
	A2	5,096,815	03/92	Ladner et al.	435	69.1	
	A3	5,283,173	02/94	Fields et al.	435	6	

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	A4	WO 88/10308	12/88	PCT				
	A5	WO 91/12273	08/91	PCT				
	A6	WO 92/05244	04/92	PCT				

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	A7	Akada, R. et al. "Genetic Relationships Between the G Protein $\beta\gamma$ Complex, Ste5p, Ste20p and Cdc42p: Investigation of Effector Roles in the Yeast Pheromone Response Pathway," <i>Genetics</i> 143:103-117 (1996)
	A8	Alison, Malcolm R. et al. "Growth factors and growth factor receptors," <i>Brit. J. of Hosp. Med.</i> 49(11):774-88 (1993)
	A9	Altieri, Dario C. "Proteases and protease receptors in modulation of leukocyte effector functions," <i>J. of Leukocyte Biol.</i> 58:120-27 (1995)
	A10	Artemyev, Nikolai O. et al. "Sites of Interaction between Rod G-Protein α -Subunit and cGMP-phosphodiesterase γ -Subunit," <i>J. Biol. Chem.</i> 267(35):25067-72 (1992)
	A11	Awramik, S. M. "New fossil finds in old rocks," <i>Nature</i> 319:446-47 (1986)
	A12	Belka, C. et al. "The role of tyrosine kinases and their substrates in signal transmission of hematopoietic growth factors: a short review," <i>Leukemia</i> 9:754-61 (1995)
	A13	Bender, Alan and Sprague, George F. Jr. "Pheromones and Pheromone Receptors Are the Primary Determinants of Mating Specificity in the Yeast <i>Saccharomyces cerevisiae</i> ," <i>Genetics</i> 121:463-76 (1989)
	A14	Birnbaumer, Lutz "Transduction of receptor signal into modulation of effector activity by G proteins: the first 20 years or so..." <i>FASEB Journal</i> 4:3178-88 (1990)
	A15	Blinder, Dmitry et al. "Constitutive Mutants in the Yeast Pheromone Response: Ordered function of the Gene Products," <i>Cell</i> 56:479-486 (1989)
	A16	Brill, Julie A. et al. "A Role for Autophosphorylation Revealed by Activated Alleles of <i>FUS3</i> , the Yeast MAP Kinase Homolog," <i>Molecular Biology of the Cell</i> 5:297-312 (1994)
	A17	Brugarolas, James et al. "Radiation-induced cell cycle arrest compromised by p21 deficiency," <i>Nature</i> 377:522-57 (1995)
	A18	Burack, W. Richard et al. "The Activating Dual Phosphorylation of MAPK by MEK Is Nonprocessive," <i>Biochemistry</i> 36(20):5929-5933 (1997)
Examiner		Date Considered
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		



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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	B1	5,401,629	03/95	Harpold et al.	435	6	
	B2	5,436,128	07/95	Harpold et al.	435	6	
	B3	5,468,614	11/95	Fields et al.	435	6	

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	B4	WO 92/08740	05/92	PCT				
	B5	WO 93/10230	05/93	PCT				
	B6	EP 568,925	11/93	EPO				

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

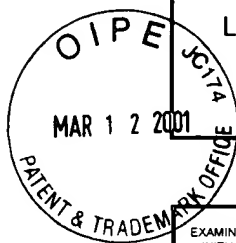
	B7	Cavallini, Bruno et al. "A yeast activity can substitute for the HeLa Cell TATA box factor," <i>Nature</i> 334:77-80 (1988)
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	B12	Clark, Karen L. et al. "Interactions among the Subunits of the G-protein Involved in <i>Saccharomyces cerevisiae</i> Mating," <i>Molecular and Cellular Biol.</i> 13(1):1-8 (1993)
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	B14	Coleman, David E. et al. "Structures of Active Conformation of $G_{i\alpha 1}$ and the Mechanism of GTP Hydrolysis," <i>Science</i> 265:1405-12 (1994)
	B15	Conklin, Bruce R. et al. "Substitution of three amino acids switches receptor specificity of $G_{q\alpha}$ to that of $G_{i\alpha}$," <i>Nature</i> 363:274-76 (1993)
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	B17	Devlin, James J. et al. "Random Peptide Libraries: A Source of Specific Protein Binding Molecules," <i>Science</i> 249:404-6 (1990)
	B18	Dietzel, Christine and Kurjan, Janet "The Yeast SCG1 Gene: A $G\alpha$ -like Protein Implicated in the α - and α -Factor Response Pathway," <i>Cell</i> 50:1001-10 (1987)

Examiner

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		FILING DATE June 19, 2000	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	C1	5,482,835	01/96	King et al.	435	6
	C2	5,580,736	12/96	Brent et al.	435	6
	C3	5,691,188	11/97	Pausch et al.	435	225.1

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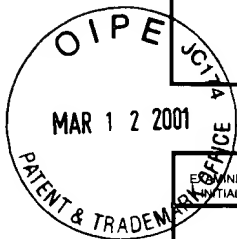
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
	C4	WO 94/23025	10/94	PCT			
	C5	WO 95/30012	11/95	PCT			
	C6	WO 97/11159	03/97	PCT			
	C7	WO 98/13513	04/98	PCT			

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C8	Dmochowska, Aleksandra et al. "Yeast KEX1 Gene Encodes a Putative Protease with a Carboxypeptidase B-like Function Involved in Killer Toxin and α -Factor Precursor Processing," <i>Cell</i> 50:573-84 (1987)
C9	Dolan, J. W. et al. "Overproduction of the yeast STE12 protein leads to constitutive transcriptional induction," <i>Genes & Development</i> 4(4):492-502 (1990)
C10	Dubois, Patrice M. et al. "Role of the transmembrane and cytoplasmic domains of surface IgM in endocytosis and signal transduction," <i>Eur. J. Immunol.</i> 22:851-57 (1992)
C11	Erickson, Deborah "Intercepted Messages: New biotechnology drugs target intracellular communication," <i>Scientific American</i> 267(5):122-23 (1992)
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C14	Ferrell, James E. Jr. et al. "The Biochemical Basis of an All-or-None Cell Fate Switch in <i>Xenopus</i> Oocytes," <i>Science</i> 280:895-898 (1998)
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C16	Fields, Stanley and Song Ok-kyu "A novel genetic system to detect protein-protein interactions," <i>Nature</i> 340:245-46 (1989)
C17	Franke, Arthur E. et al. "Human C5a Anaphylatoxin: Gene Synthesis, Expression, and Recovery of Biologically Active Material from <i>Escherichia coli</i> ," <i>Methods in Enzymology</i> 162:653-68 (1988)
C18	Funaro, Ana et al. "Human CD38 is associated to distinct molecules which mediate transmembrane signaling in different lineages," <i>Eur. J. Immunol.</i> 23:2407-11 (1993)
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	D1	5,739,029	04/98	King et al.	435	254.21

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	D2	Gallego, Carme et al. "Myristoylation of the G _{α12} polypeptide, a G protein α subunit, is required for its signaling and transformation functions," <i>Proc. Natl. Acad. Sci. USA</i> 89:9695-99 (1992)
	D3	Garritsen, Anja et al. "The N-Terminal coiled-coil domain of β is essential for γ association: A Model for G-Protein βγ subunit interaction," <i>Proc. Natl. Acad. Sci. USA</i> 90:7706-10 (1993)
	D4	Gerard, Norma P. and Gerard, Craig "Construction and Expression of a Novel Recombinant Anaphylatoxin, C5a-N19, a Probe for the Human C5a Receptor," <i>Biochemistry</i> 29(39):9274-81 (1990)
	D5	Gordon, J. "B-cell signaling via the C-type lectins CD23 and CD72," <i>Immunology Today</i> 15(9):411-17 (1994)
	D6	Graf, Rolf et al. "A Truncated Recombinant α Subunit of G ₁₃ with a Reduced Affinity for βγ Dimers and Altered Guanosine 5'-3-O-(Thio)triphosphate Binding," <i>J. of Biol. Chem.</i> 267(34):24307-14 (1992)
	D7	Gros, Philippe et al. "Mammalian Multidrug Resistance Gene: Complete cDNA Sequence Indicates Strong Homology to Bacterial Transport Proteins," <i>Cell</i> 47:371-80 (1986)
	D8	Gyuris, Jenő et al. "Cdk1, A Human G1 and S Phase Protein Phosphatase That Associates with Cdk2," <i>Cell</i> 75:791-803 (1993)
	D9	Hagen, David C. et al. "Evidence the yeast <i>STE3</i> gene encodes a receptor for the peptide pheromone a factor: Gene sequence and implications for the structure of the presumed receptor," <i>Proc. Natl. Acad. Sci. USA</i> 83:1418-22 (1986)
	D10	Hall, Marcia et al. "Evidence for different modes of action of cyclin-dependent kinase inhibitors: p15 and p16 bind to kinases, p21 and p27 bind to cyclins," <i>Oncogene</i> 11:1581-88 (1995)
	D11	Harbury, Pehr B. et al. "A Switch Between Two-, Three- and Four-Stranded Coiled Coils in GCN4 Leucine Zipper Mutants," <i>Science</i> 262:1401-07 (1993)
	D12	Hartwell, Leland H. "Mutants of <i>Saccharomyces cerevisiae</i> Unresponsive to Cell Division Control by Polypeptide Mating Hormone," <i>J. Cell Biol.</i> 85:811-22 (1980)
	D13	Hasson, M.S. et al. "Mutational Activation of the <i>STE5</i> Gene Product Bypasses the Requirement for G Protein β and γ Subunits in the Yeast Pheromone Response Pathway," <i>Molecular and Cellular Biology</i> 14(2):1054-1065 (1994)
	D14	He, Bin et al. "RAM2, an essential gene of yeast, and RAM1 encode the two polypeptide components of the farnesyltransferase that prenylates a-actor and Ras proteins," <i>Proc. Natl. Acad. Sci. USA</i> 88:11373-77 (1991)
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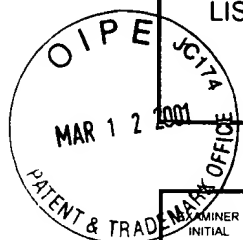
E1	Hiltunen, J. Kalervo et al. "Peroxisomal Multifunctional β -Oxidation Protein of <i>Saccharomyces cerevisiae</i> ," <i>J. of Biol. Chem.</i> 267(10):6646-6653 (1992)
E2	Hrycyna, Christine A. et al. "The <i>Saccharomyces cerevisiae</i> STE14 gene encodes a methyltransferase that mediates C-terminal methylation of a-factor and RAS Proteins," <i>The EMBO J.</i> 10(1):1699-1709 (1991)
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E5	Hughes, David A. et al. "Complementation of <i>byr1</i> in fission yeast by mammalian MAP kinase kinase requires coexpression of Raf kinase," <i>Nature</i> 364:349-52 (1993)
E6	Imamoto, Akira et al. "Genetics of signal transduction: tales from the mouse," <i>Curr. Opin. Gen. & Dev.</i> 4:40-46 (1994)
E7	Inouye, Carla et al. "Ste5 RING-H2 Domain: Role in Ste4-Promoted Oligomerization for Yeast Pheromone Signaling," <i>Science</i> 278:103-106 (1997)
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E10	Journot, Laurent et al. "Amino Acids 367-376 of the G_s α subunit induce membrane association when fused to soluble amino-terminal deleted G_{11} α subunit," <i>Proc. Natl. Acad. Sci. USA</i> 88:10054-58 (1991)
E11	Julius, David et al. "Glycosylation and Processing of Prepro- α -Factor through the Yeast Secretory Pathway," <i>Cell</i> 36:309-18 (1984)
E12	Julius, David et al. "Isolation of the Putative Structural Gene for the Lysine-Arginine-Cleaving Endopeptidase Required for Processing of Yeast Prepro- α -factor," <i>Cell</i> 37:1075-89 (1984)
E13	Julius, David et al. "Yeast α Factor is Processed from a Larger Precursor Polypeptide: The Essential Role of a Membrane-Bound Dipeptidyl Aminopeptidase," <i>Cell</i> 32:839-52 (1983)
E14	Kaiser, Chris A. et al. "Many Random Sequences Functionally Replace the Secretion Signal Sequence of Yeast Invertase," <i>Science</i> 235:312-17 (1987)

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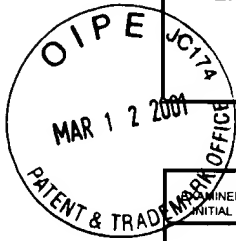
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APPLICANT FACSIMILE OF FORM PTO-1449

REV 7-80

U.S. DEPARTMENT OF
COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO

SERIAL NO.

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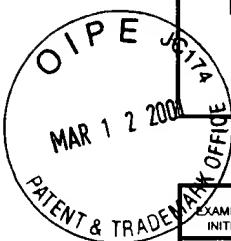
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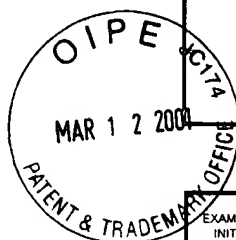
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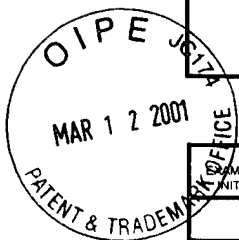
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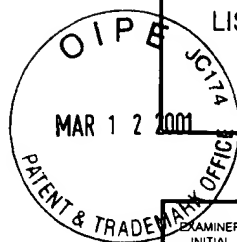
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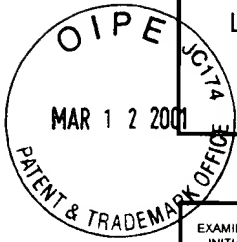
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